
Manglietia crassifolia (Magnoliaceae), a New Species from Vietnam

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ABSTRACT. *Manglietia crassifolia* Q. N. Vu, N. H. Xia & Sima, a new species of Magnoliaceae from Lao Cai Province in northern Vietnam, is described and illustrated. It is most closely related to *M. dandyi* (Gagnep.) Dandy and *M. megaphylla* Hu & W. C. Cheng, but differs in its broadly ovoid terminal buds, the thickly leathery leaf blade that is abaxially densely villous with appressed, ferruginous-brown, matted hairs, the purplish cream outermost tepals, the glabrous and purplish red stamens with obtuse appendages, and the ellipsoid, very short-beaked fruits.

Key words: IUCN Red List, Magnoliaceae, *Manglietia*, Vietnam.

The genus *Manglietia* Blume (Magnoliaceae, Magnolioideae) was established by Blume (1823) on the basis of its young leaves conduplicate in bud, flowers terminal, stipules adnate to petioles, and ovules four or more per carpel. According to the modern generic circumscription by Xia et al. (2008), this genus includes more than 40 species distributed in tropical and subtropical regions of southeastern Asia, and ca. 12 are currently known from Vietnam.

During a botanical expedition made by the first author in August 2008 to the Hoang Lien National Park, Sa Pa District, Lao Cai Province, in northern Vietnam, several herbarium vouchers of *Manglietia* deposited in the park's Biodiversity Center were examined for identification. One collection, *Nguyen Ba Dien HL 69*, made from the San Sa Ho commune in 2005 was noteworthy for its vegetative aspects, but

lacked flowers and fruits. The leaf blade was broadly elliptic in outline, with its abaxial surface and the terminal buds densely villous with appressed, ferruginous-brown, matted hairs. Later, in September 2009, specimens of the Magnoliaceae collected from Hoang Lien National Park were sent to the first author for identification. One of these, *Wen et al. 10834*, had flowers, and its vegetation matched perfectly with the aforementioned collection *Nguyen Ba Dien HL 69*. In December 2009 and October 2010, the first author successfully collected fruiting specimens (*Nam 181209.3* & *31010*). After careful comparison with other species in *Manglietia*, we found that the plant could not be referred to any of the previously described taxa, and thus is here described as a new species.

Manglietia crassifolia Q. N. Vu, N. H. Xia & Sima, sp. nov. TYPE: Vietnam. Lao Cai Prov.: Sa Pa Distr., Hoang Lien Natl. Park, 1890 m, 22°21'28.9"N, 103°46'53.8"E, 18 Dec. 2009, V. Q. Nam 181209.3 (holotype, VNF; isotype, IBSC). Figures 1, 2.

Species nova *Manglietiae dandyi* (Gagnep.) Dandy et *M. megaphyllae* Hu & W. C. Cheng arcte affinis, sed ab eis gemmis terminalibus late ovoideis usque ellipsoideo-ovoideis, foliorum laminis crasse coriaceis abaxialiter densissime appresseque ferrugineo-brunneo-villosis, tepalis exterioribus purpurascensibus, staminibus glabris purpurascensibus rubris appendicibus obtusis atque fructibus ellipsoideis brevissime rostratis differt.

Evergreen trees, to 8–15 m tall, to 20 cm diam., trunks rounded, branched; bark grayish brown, not

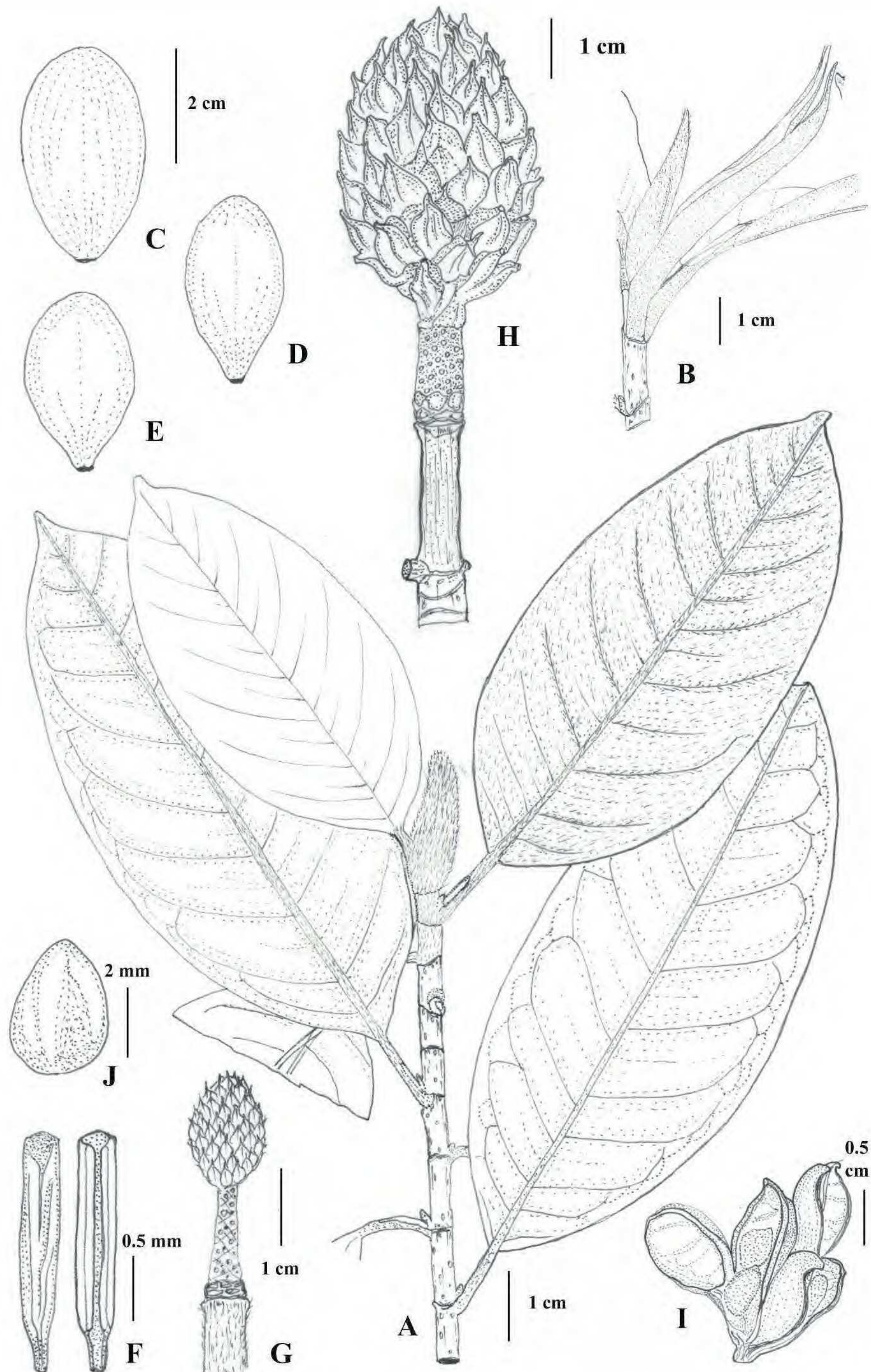


Figure 1. *Manglietia crassifolia* Q. N. Vu, N. H. Xia & Sima. —A. Habit. —B. Terminal bud and stipule. —C. Tepal of outer whorl. —D, E. Tepals of inner whorls. —F. Stamens. —G. Gynoecium. —H. Fruit. —I. Dehiscent carpels. —J. Seed. Drawn by Vu Quang Nam. A, B, H–J drawn from the holotype *Nam 181209.3* (VNF); C–G from *Wen et al. 10834* (Center for Plant Conservation, Vietnam Union of Science and Technology Association).

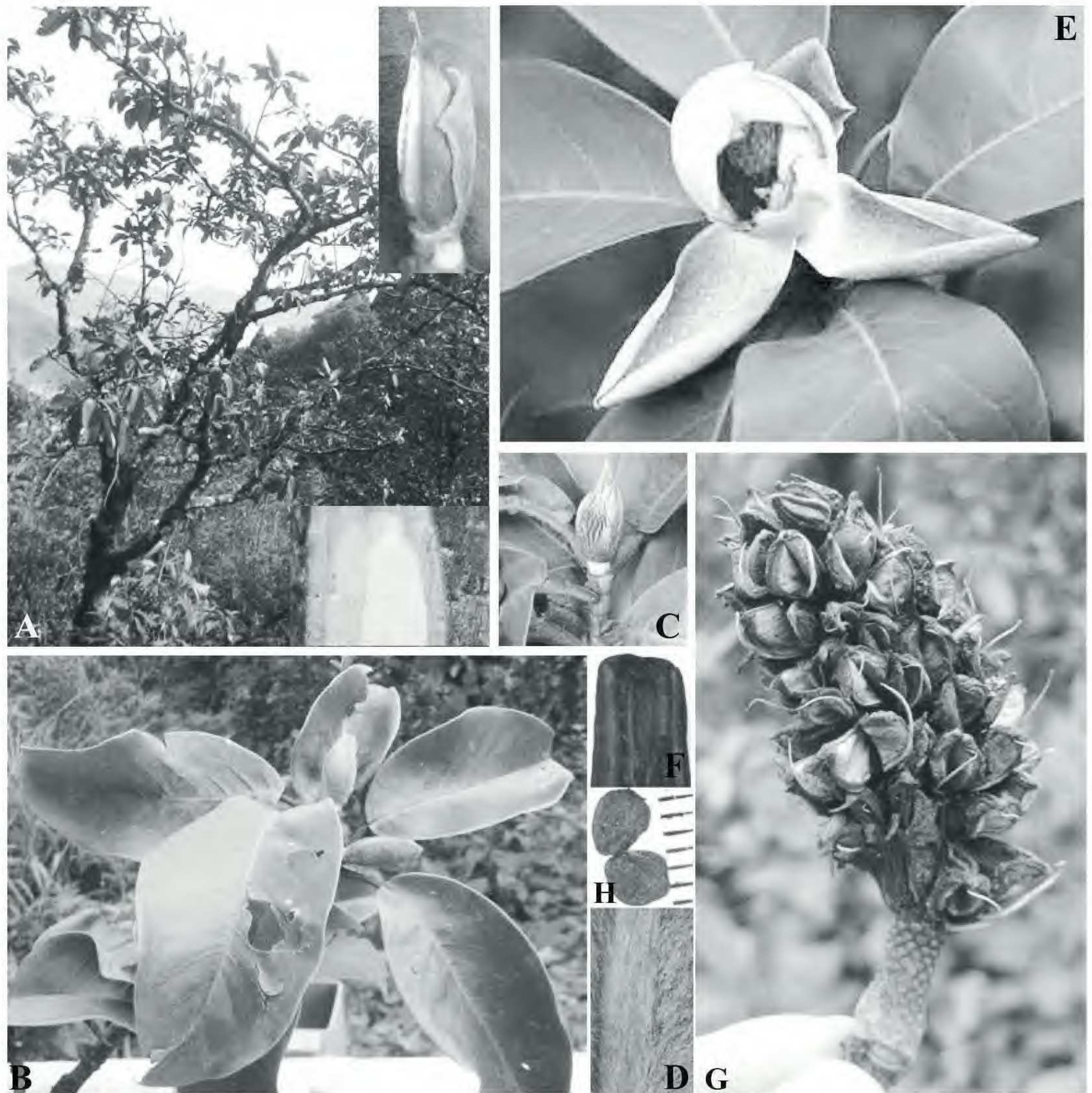


Figure 2. *Manglietia crassifolia* Q. N. Vu, N. H. Xia & Sima. —A. Habit, with insets showing bark (lower right) and vegetative bud, showing leaves conduplicate in bud (upper right). —B. Branch apex with leaves and bud. —C. Terminal bud and adaxial view of petioles, showing stipular scars. —D. Abaxial leaf surface, showing the dense, appressed, matted hairs. —E. Apical view of flower. —F. Stamen apex, showing the short obtuse appendage. —G. Fruit. —H. Seeds. Photo in E taken by Nguyen Quang Hieu (Center for Plant Conservation, Vietnam Union of Science and Technology Association); other photos by Vu Quang Nam. A–D, H from *Nam 181209.3* (VNF); E, F from *Wen et al. 10834* (Center for Plant Conservation, Vietnam Union of Science and Technology Association); G from *Nam 31010* (VNF).

fissured; cortex fleshy, yellowish white, pith white. Leaves spirally arranged, conduplicate in bud; vegetative buds, abaxial leaf blade surfaces, petioles, stipules, peduncles, pedicels, and spathaceous bracts densely ferruginous-brown villous; young twigs 5–7 mm diam., glabrescent and lenticellate when mature. Vegetative buds broadly ovoid to elliptic-ovoid, 2–4 × 1.3–1.6 cm; stipules adnate to the petiole, stipular scars 7–13 mm, extending 1/2 to 2/3 of petiole length; petioles 1.6–3 cm, leaf blades thickly leathery or coriaceous, broadly elliptic to elliptic, (10–)15–

17(–21) × (5–)7–8 cm, adaxially glabrous, dark green, abaxially very densely villous with appressed, ferruginous-brown, matted hairs, blade bases rounded to broadly cuneate, apex acuminate with an acumen 4–12 mm; blade margins recurved; secondary veins 9 to 15 on each side of the midrib, oblique, adaxially obscure, abaxially conspicuous, reticulation abaxially obscured by the dense indumentum; blade midrib and margin bright yellowish green when fresh. Peduncles ca. 1.7 × 0.5 cm in flowering material, glabrescent with maturity, lengthening to 1.8–2 × 0.5–0.8 cm in

Table 1. Differences in morphological characters among *Manglietia crassifolia*, *M. dandyi*, and *M. megaphylla*.

	<i>M. crassifolia</i>	<i>M. dandyi</i>	<i>M. megaphylla</i>
Terminal buds	broadly ovoid to elliptic-ovoid, 2–4 × 1.3–1.6 cm	ellipsoid, ca. 3.5 × 1 cm	ellipsoid, 3–5 × ca. 1.5 cm
Leaf blade	broadly elliptic to elliptic, (10–)15–17(–21) × (5–)7–8 cm, abaxially very densely villous, rusty brown in color	obovate to obovate-elliptic, 17–21.5 × 5.5–9.5 cm, abaxially somewhat villous, rusty in color	obovate, 25–50 × 10–20 cm, abaxially tomentose to sparsely pubescent, rufous in color
Secondary veins on each side of midrib	9 to 15	12 to 14(to 16 or 18)	17 to 24
Leaf acumen	0.4–1.2 cm	1.8–2 cm	1–1.5 cm
Outer tepals	purplish cream, 3.7–4.2 cm	white, ca. 2.7 cm	pale green, obovate-oblong, 4.5–5 cm
Stamens	purplish red, glabrous	color not known, sparsely pubescent outside	red to cream-red, sparsely pubescent outside
Stamen appendage	obtuse	triangular	triangular
Fruiting peduncles at maturity	1.8–2 × 0.5–0.8 cm	2–4.5 × ca. 0.5 cm	2.5–7.5 × 1.2–1.5 cm
Pedicels	0–2 mm	0–2 mm	0–1.5 cm
Fruits	ellipsoid, 4.5–6 × 2.8–3.5 cm	globose to subglobose, 6.5–8 × 5.5–7 cm	globose to subglobose, 7–12 × 6.5–10.8 cm
Fruiting beak	1–2 mm, slightly recurved	ca. 7 mm, recurved	7–10 mm, recurved
Scar of perianth and stamens	ca. 1.6 cm	ca. 1.7 cm	ca. 1.5 cm
Number of mature carpels	73 to 102	24 to 40	57 to 65

fruiting material; pedicels absent or < 2 mm long; spathaceous bract 1. Flowers terminal, solitary, generally cream-white, glabrous; tepals 9 in 3 whorls, the 3 outer tepals oblong to obovate, 3.7–4.2 × 2.5 cm, purplish cream, margin wavy, those of the inner whorls slightly smaller, obovate, thickly fleshy, cream-white; stamens numerous, purplish red, glabrous, ca. 16 × 2 mm; filaments ca. 3 mm, the connective continued into an obtuse appendage, introrsely dehiscent; gynoecium narrowly ovoid to ellipsoid, ca. 1.6 × 1.2 cm, pubescent. Fruits ellipsoid, 4.5–6 × 2.8–3.5 cm, very briefly rostrate; stamen and perianth scars ca. 1.6 cm in fruit; mature carpels 73 to 102, 0.7–1.3 × ca. 0.6 cm, dehiscing along the dorsal sutures and later along the ventral sutures, beaks acute and slightly recurved when dry, 1–2 mm long; seeds 4 or more per carpel, ovoid, ca. 7 × 6 mm.

Distribution and habitat. *Manglietia crassifolia* is currently only known from the Hoang Lien National Park, Sa Pa District, Lao Cai Province, Vietnam. The new taxon was found in evergreen broad-leaved forests on limestone mountains at altitudes of ca. 1800–2000 m.

IUCN Red List category. Because *Manglietia crassifolia* is known only from one locality and the population size is very small (less than 50 mature individuals), it is assessed here as Critically Endangered (CR), according to IUCN Red List criteria (IUCN, 2001).

Phenology. *Manglietia crassifolia* was observed in flower from April to May and in fruit from August to November.

Vernacular name. Mỡ lông dầy (referring to its matted hairy indumentum).

Taxonomic notes. The new species is assigned to *Manglietia*, according to the generic circumscription by Xia et al. (2008), and to *Manglietia* sect. *Manglietia*, according to the generic circumscription by Chen and Nootboom (1993), on the basis of its young leaves conduplicate in bud, flowers terminal, stipules adnate to petioles, and ovules four or more per carpel.

Manglietia crassifolia is a distinctive species, distinguished by its broadly ovoid terminal buds, the thickly leathery leaf blade that is abaxially densely villous with appressed, ferruginous-brown, matted hairs, the purplish cream outer tepals, the glabrous and purplish red stamens with obtuse appendages, as well as the ellipsoid, very shortly beaked fruits. The new species is most likely related to *M. dandyi* (Gagnep.) Dandy (Pragowski, 1974), which has similar leaf size and indumentum, and to the sympatric species *M. megaphylla* Hu & W. C. Cheng (Hu & Cheng, 1951). These taxa also belong in *Manglietia* sect. *Manglietia*, and all three species are compared in Table 1.

Paratypes. VIETNAM. **Lao Cai:** Sa Pa Distr., Hoang Lien Natl. Park, V. Q. Nam 31010 (IBSC, MO, VNF), *Nguyen Ba Dien HL 69* (Biodiversity Center, Hoang Lien

Natl. Park), *J. Wen, N. T. Hiep & N. Q. Hieu 10834* (Center for Plant Conservation, Vietnam Union of Science and Technology Association).

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